

Spiracular channels broad, opening directly on to or close to the margin, closely studded with tubular ducts. Dorsum with irregularly disposed series of small, densely chitinous, cribriform plates (fig. 3, *c*) varying in size, form, and number of pores, but always much smaller and less conspicuous than those of *formicarum*, each plate with a narrow, sharply defined, paler outer border. Derm of dorsum with smaller and larger pores (the latter thick-rimmed) and with transverse series of spiniform setæ, which are larger and more numerous on the abdominal segments. Anal operculum surrounded by a densely chitinous zone, sprinkled with small pores and larger ovoid lacunæ. Anal ring with sixteen (or more) stout setæ. Margin of body without fringe of spines or setæ. Stigmatic clefts obscure, without stigmatic spines.

Length of average examples 2.5 mm.

Nymph very similar to the adult, but smaller and flatter, and without a denser chitinous area surrounding the anal aperture. Antenna 5-jointed, the basal joint in the form of a narrow band, second joint largest. Legs (fig. 3, *e*) reduced to conical points, with obscure traces of partial segmentation; with a minute apical claw. Cribriform plates as in adult, but often less strongly chitinized. Anal ring with ten setæ. Spiracular channels opening directly on to the margin. No stigmatic spines. No marginal spines or setæ.

Larva not observed.

Coimbatore, India.

On roots of *Cassia* sp. Coll. T. V. Ramakrishna (no. 204), 9. iii. 1921.

## LXX.—Some new or rare British Crustacea.

By ROBERT GURNEY, M.A.

### 1. *Canthocamptus echinatus*, Mrazek.

In July 1919 a few specimens of a species of *Canthocamptus* resembling *C. echinatus* were taken at Flordon Common near Norwich, but I was unable at the time, with the scanty material available, to determine its identity with certainty, and I was unable to find the species again on a second visit to the spot. In 1920 the same form was found in considerable

Fig. 1.

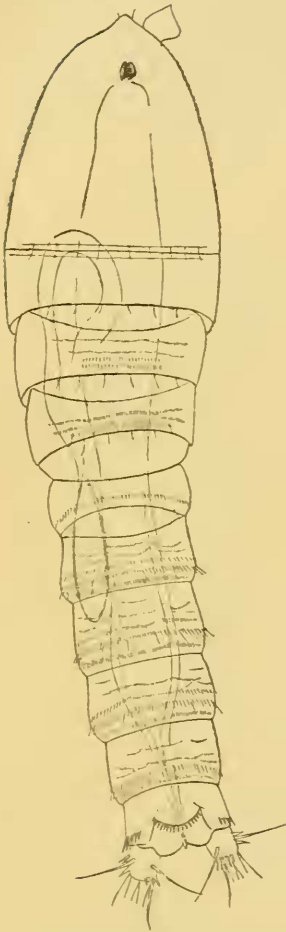


Fig 2.



*Canthocamptus echinatus*, Mrazek.

Fig. 1.—Male dorsal view, showing arrangement of cilia on cuticle.  
Fig. 2.—First antenna of female.

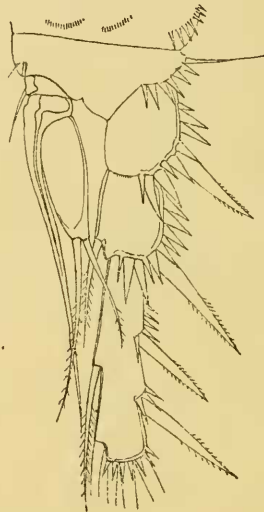
number in *Sphagnum*-moss on Buxton Heath, and a careful comparison with Mrazek's description leaves no doubt that my provisional identification was correct. The specimens differ in some small details from Mrazek's description, and, as the species has not previously been found in Britain, some description and figures may prove useful to others.

The species was described by Mrazek in 1893 from specimens taken in Bohemia, and in 1894 Schmeil recorded the occurrence in Switzerland of a variety, which he named

Fig. 3.



Fig. 4.



*Canthocamptus echinatus*, Mrazek.

Fig. 3.—First leg of female.

Fig. 4.—Third leg of male.

var. *luenensis*, differing from the type only in the possession of an additional seta on the basal joint of the fifth foot of the female. This var. *luenensis* has been found by others in Switzerland, in the Dauphiné Alps and at Lunz in Austria, but the typical form has not been met with again, neither has any description of the species been published other than that of Mrazek.

The segments of the body are not toothed, but are characterized by the possession of numerous transverse groups of hairs or spinules on the dorsal surface of the two last thoracic and first three (or four in male) abdominal segments (fig. 1). Such dorsal rows of delicate hairs are also found in *C. crassus*, *C. pilosus*, and other species, but they are more conspicuous in *C. echinatus*, which owes its name to their presence.

Fig. 5.

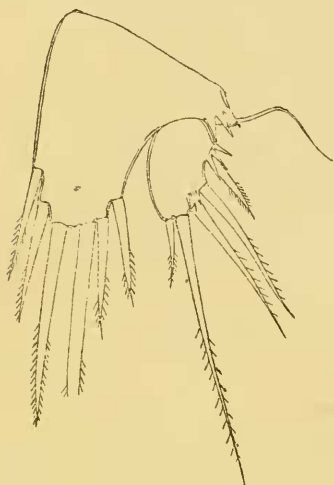


Fig. 6.



*Canthocamptus echinatus*, Mrazek.

Fig. 5.—Fifth leg of female

Fig. 6.—Fifth leg of male.

As regards the appendages, my own specimens agree with those of Mrazek, with the following exceptions:—

(1) First pair of legs: The agreement in general form is complete, but the first joint of the inner branch bears a short seta which is not shown in Mrazek's figure.

(2) Fifth leg of female: The basal joint bears six setæ instead of five, as is also the case in the var. *luenensis*. In other respects the agreement is close.

(3) Fifth foot of male: Here there is no difference in the number of setæ, but their relative length is not the same as that shown by Mrazek. The two strong spines of the basal

joint are somewhat variable, the outermost being sometimes scarcely more than half as long as the inner one, as figured by Mrazek, but usually it is about two-thirds of the length, as in var. *luenensis*. In the second joint the innermost seta is long and slender, as in var. *luenensis*, whereas Mrazek figures it as a minute spine.

I have met with this species in three localities in Norfolk—namely, Flordon Common near Norwich, Buxton Heath (Hevingham), and Holt Lowes. At Flordon it was found in calcareous mud from a pool, nearly dry, but in the other two places it was living in *Sphagnum*-moss, and it is probably to be regarded as a species preferring *Sphagnum* and water in which Desmids occur.

The resemblance between this form and *C. praeegeri*, Scourfield, which Mr. Scourfield has recently described from a single female taken on Clare Island\*, is very close, but the form of the furcal rami and the presence of hairs instead of spines on the anal operculum in *C. praeegeri*, together with the divergence of the furcal setæ, sufficiently separate the two species.

## 2. *Canthocamptus weberi*, Kessler.

Kessler, Zool. Anz. xlv. 1914, p. 474; Thallwitz, Zool. Anz. xlviii. 1917, p. 159.

A few specimens of this rare species were found in July and August 1920 in pools on Newton St. Faith's Common near Norwich. There were at that time many small pools an inch or two deep with *Sphagnum* growing round the edges, and in most of them *Moraria brevipes*, Sars, was abundant, but *C. weberi* was only found in one or two of the pools in which the bottom was covered with a thin felt of the liverwort, *Gymnocolen inflata*. The few specimens observed were obtained by squeezing this liverwort. These pools occupy depressions in the heather-covered common, and are generally dry in summer. The summer of 1920 being particularly wet and cold the pools remained supplied with water throughout July and August, whereas in 1921 nearly all were entirely dry in May and *C. weberi* was not to be found.

*C. weberi* is an exceedingly small species, .38 mm. long, and very closely resembles *C. typhlops*, Mrazek. It was described by Kessler in 1914 from specimens taken in moss in North

\* Proc. Roy. Irish Acad. xxx. 1912, p. 14.

Saxony, and, so far as I am aware, it has not been taken elsewhere.

The points of difference between *C. typhlops* and *C. weberi* have been very carefully described both by Kessler and Thallwitz, and the latter has gone fully into the relation between these two species and *C. zschokkei* and *C. pygmaeus*, to which they seem to be related.

The most striking characteristic of the species is the form of the anal operculum, which bears three, or occasionally two, very large spines. These spines in *C. typhlops* are stated by Mrazek to be actually prolongations of the operculum itself, whereas in *C. weberi*, according to Kessler, they are spines set on the operculum in the usual way. Although my specimens belong unquestionably to *C. weberi*, I have not seen in any case any line of division between spines and operculum, and am therefore of opinion that this difference is more apparent than real. Thallwitz mentions that in one specimen of *C. typhlops* the outer spines appeared to be distinctly divided from the operculum.

I have compared my specimens with the descriptions of Kessler and Thallwitz, and find the agreement between them and the specimens from Saxony to be complete in every detail, with the exception of the opercular spines as mentioned above.

### 3. *Cunthocamptus cuspidatus*, Schmeil.

Taken in *Sphagnum*-moss at Holt Lowes in Norfolk in June 1921, in company with *C. echinatus* and *Moraria brevipes*.

*C. cuspidatus* is a widely distributed species, but is characteristic of mountainous or northern regions. It has been found in various parts of Scotland, but not hitherto in any part of England, and its occurrence in Norfolk is therefore of rather special interest.

The locality in which it was found is a fold in the gravelly slope bounding the valley of Holt Lowes, at the head of which are springs the water from which trickles through beds of *Sphagnum* or supplies small shallow pools in the moss. The conditions are exceptional for this county, and approximate to those natural for the species. It is probably no more than a coincidence that the characteristically northern orchid *Goodyera repens* grows in the immediate neighbourhood of Holt Lowes.

4. *Leander longirostris* (Milne-Edwards).

Milne-Edwards, Hist. Nat. des Crustacés, ii. 1837, p. 392.

In some notes on the Crustacea of the East Norfolk rivers, published in 1907\*, I recorded the occurrence of *Leander squilla* in one of the Broads over 20 miles from the sea, and the same species has from time to time been taken since then at various points in these rivers, while it is known to be abundant at times in Breydon Water and in Oulton Broad. Having recently had occasion to re-examine my old specimens, and to compare them with a number recently taken from Breydon Water, it at once became evident that my original identification was not correct. The work of Stanley Kemp † and of De Man ‡ has now made the identification of the European species of *Leander* comparatively easy, and there can be no doubt that this Norfolk prawn is really *L. longirostris*, M.-Edw., a species which has not hitherto been recorded as British. It is common in the rivers Bure and Waveney, and probably also in the Yare, and prefers water of low salinity. It is known on Breydon as the "Jack Shrimp," and is regarded as a freshwater species, since it is most abundant when the water is least salt. It is not found in the sea nor anywhere on the coast of Norfolk, its place being taken in the salt-marshes from Hunstanton to Cley by *Leander squilla*.

I have been able to obtain most of the stages of the larval development both of *L. longirostris* and also of *L. squilla*, but there are certain points with regard to life-history and distribution which require further investigation and to deserve more detailed treatment on a later occasion.

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 EDITORIAL NOTE.

THE Editors desire to draw the attention of Contributors to the Recommendation of the British Association Committee on Zoological Bibliography and Publication that the ordinal (or class) position of a group treated in any paper should be clearly given in the title or in parentheses following the title. It is felt in many quarters that the value of papers appearing in these pages would be much increased if this course were more generally followed, and an appeal is therefore made to Authors to adopt the Recommendation.

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\* Trans. Norf. & Nor. Nat. Soc. viii. p. 431.

† Fisheries, Ireland, Sci. Invest. 1903, i. 1910, p. 127.

‡ Tijdschr. Ned. Dierk. Vereen. xiv. 1915-16, p. 117.